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09/868,832	06/21/2001	Toshikazu Hirota	789 070	6274

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EXAMINER
FORMAN, BETTY J

ART UNIT	PAPER NUMBER
1634	9

DATE MAILED: 05/14/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/868,832	Applicant(s) HIROTA ET AL.	
	Examiner Betty J Forman	Art Unit 1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 February 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. This action is in response to papers filed 22 February 2002 in Paper No. 8 in which claims 1-8 were amended and claims 9-32 were added. All of the amendments have been thoroughly reviewed and entered. The previous rejections in the Office Action of Paper No. 6 dated 29 October 2001 are withdrawn in view of the amendments. All of the arguments have been thoroughly reviewed but are deemed moot in view of the amendments, withdrawn rejections and new grounds for rejection. New grounds for rejection are discussed.

The examiner's Art Unit has changed from 1655 to 1634. Please address future correspondence to Art Unit 1634.

Currently claims 1-32 are under prosecution.

Specification

2. The amendment filed 22 February 2002 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: The amendment to the paragraph beginning at line 12 on page 16 changes "10μ g/μ liter" to "10μ g/ml". The amendment introduces new matter into the specification because the specification as filed does not provide support for the amendment.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 30-32 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

To the extent that the claimed composition are not described in the instant disclosure, claims 30-32 are also rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention, since a disclosure cannot teach one to make or use something that has not been described.

The recitation "said base plate is non-permeable with respect to said capture solution" is added to the newly added claims 30-32. However, the specification fails to define or provide any disclosure to support such claim recitation.

MPEP 2163.06 notes "IF NEW MATTER IS ADDED TO THE CLAIMS, THE EXAMINER SHOULD REJECT THE CLAIMS UNDER 35 U.S.C. 112, FIRST PARAGRAPH - WRITTEN DESCRIPTION REQUIREMENT. *IN RE RASMUSSEN*, 650 F.2D 1212, 211 USPQ 323 (CCPA 1981)." MPEP 2163.02 teaches that "Whenever the issue arises, the fundamental factual inquiry is whether a claim defines an invention that is clearly conveyed to those skilled in the art at the time the application was filed...If a claim is amended to include subject matter, limitations, or terminology not present in the application as filed, involving a departure from, addition to, or deletion from the disclosure of the application as filed, the examiner should conclude that the claimed subject matter is not described in that application." MPEP 2163.06 further notes "WHEN AN AMENDMENT IS FILED IN REPLY TO AN OBJECTION OR REJECTION BASED ON 35 U.S.C. 112, FIRST PARAGRAPH, A STUDY OF THE ENTIRE APPLICATION IS OFTEN NECESSARY TO DETERMINE WHETHER OR NOT "NEW MATTER" IS INVOLVED. *APPLICANT SHOULD THEREFORE SPECIFICALLY POINT OUT THE SUPPORT FOR ANY AMENDMENTS MADE TO THE DISCLOSURE*" (emphasis added).

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

6. Claims 1-6, 8-13, 15-20, 22-27 and 29-32 are rejected under 35 U.S.C. 102(e) as being anticipated by Felder et al. (U.S. Patent No. 6,232,066 B1, filed 2 July 1998).

Regarding Claim 1, Felder et al. disclose a biochip comprising a large number of spots arranged on a base plate (Column 4, line 63-Column 5, line 18) obtained by supplying a plurality of types of capture solutions (i.e. anchors) onto said base plate each of which specifically reacts with a structure of a specimen (Column 7, lines 46-48) and wherein the plurality of spots have different spot sizes (Column 8, lines 52-56). Felder et al disclose the biochip wherein the a plurality of spots (i.e. beads) are arranged on a support (Column 8, lines 39-42), wherein the beads are of different size (Column 8, lines 55-56) and wherein each bead has attached thereto a capture solution i.e. anchor, Column 6, lines 52-67).

Regarding Claim 2, Felder et al. disclose the biochip of Claim 1 wherein said plurality of spots are formed from the same capture solution i.e. generic anchor which interacts with one linker (Column 10, lines 28-33).

Regarding Claim 3, Felder et al. disclose a biochip comprising a large number of spots arranged on a base plate obtained by supplying a plurality of types of capture solutions (i.e. oligonucleotide anchors) onto said base plate each of which specifically reacts with a structure of a specimen wherein a plurality of spots are formed in which the concentration of the capture material in the capture solution varies from spot to spot i.e. the top row comprises 1 drop

capture material/well and the second row comprises 4 drops capture material/well and etc thereby providing spots (wells) having a different concentration of capture material within the hybridization capture solution (Example 3, Column 33, lines 32-43 and Fig. 12).

Regarding Claim 4, Felder et al. disclose the biochip of Claim 3 wherein said plurality of spots are formed from the same capture solution (Example 3, Column 33, lines 32-43 and Fig. 12).

Regarding Claim 5, Felder et al. disclose a biochip comprising a large number of spots (i.e. spatially discrete regions) arranged on a base plate obtained by supplying a plurality of types of capture solutions (i.e. anchors) onto said base plate each of which specifically reacts with a structure of a specimen wherein the spots are composed of different types of captures (i.e. different oligonucleotide anchors) wherein each spot has a plurality of types of capture material and said spots are formed at the same spot formation position (Column 2, lines 49-62) i.e. each spatially discrete region on the place comprises at least 8 different oligonucleotide anchors thereby providing a biochip comprising a plurality of regions each having a plurality of types of oligonucleotide capture materials (Example 1, Column 30, lines 20-45).

Regarding Claim 6, Felder et al. disclose a biochip comprising a large number of spots (i.e. spatially discrete regions e.g. wells) arranged on a base plate obtained by supplying a plurality of types of capture solutions (i.e. anchors) onto said base plate each of which specifically reacts with a structure of a specimen wherein the spots are composed of different types of captures (i.e. different oligonucleotide anchors, Column 2, lines 49-62) wherein each of said spots has a ratio between a major and minor axis of not less than 0.9 and not more than 1.1 i.e. the spots are circular wells wherein the ratio between the major and minor axis is not less than 0.9 and not more than 1.1 (e.g. Fig. 10, 12, 13).

Regarding Claims 8-13, Felder et al. disclose the biochips of Claims 1-6 wherein spots formed with an in-jet system (Column 13, lines 23-34).

Regarding Claims 15-20 and 22-27, Felder et al. disclose the biochips of Claims 1-6 wherein spots formed with an in-jet system (Column 13, lines 23-34). The courts have stated "even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) see MPEP 2113. Felder et al disclose the biochips of Claims 1-6 wherein the spots are formed using an ink jet (Column 13, lines 23-34 and Column 30,lines 23-26). Because the claimed biochip comprising a plurality of spots does not depend upon the process of making the biochip i.e. electronically controlled sample discharge and number of discharges and because Felder teaches the biochip as defined i.e. comprising a plurality of spots arranged on a base plate, Felder et al disclose the claimed biochip.

Regarding Claim 29, Felder et al disclose the biochip of Claim 5 wherein a first layer spot comprising a ridged peripheral position (i.e. DNA-Bind coated well) and a second layer spot (i.e. oligonucleotide anchor) is deposited on said first layer inside said ridge peripheral portion (Column 5,lines 6-14 and Example 1, Column 30, lines 30-34).

Regarding Claims 30-32, Felder et al disclose the biochips of Claim 3, 5 and 6 wherein the base plate is non-permeable (Column 4, line 63-Column 5, line 18).

Response to Arguments

7. Applicant states that the instant invention provides increased detection sensitivity which allows for detection of low concentration targets. Applicant further states that the instant invention also provides a greatly reduced arrangement area allowing for miniaturization of the micro-array. The comments have been considered. However, because the comments do not address the previous or instant claim limitations, the comments are not addressed.

Regarding Claim 1, Applicant argues that Felder et al disclose oligonucleotide anchors attached to particles, beads or the like that can be formed to be different in size or shape from

one another and as such Felder merely disclose a bead or particle size is varied but each has a fixed amount of capture solution disposed thereon. Applicant further argues that Felder et al do not teach or suggest forming a plurality of sample spots "which have different spot sizes (i.e. varying the volumes of each sample spot)". In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e. amount of capture solution and volumes of each sample spot) are not recited in the rejected claim. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Additionally, the argument is not found persuasive because Claim 1 is drawn to a biochip having a plurality of spots which have different spot sizes. As noted by Applicant, Felder et al disclose capture solutions (i.e. oligonucleotide anchors) attached to beads or particles of different sizes. Therefore, the spots of Felder et al which comprise oligonucleotides attached to beads of differing sizes provide different spot sizes as claimed.

Regarding Claim 3, Applicant argues that Felder et al do not disclose varying the concentration of the capture material. The argument has been considered but is not found persuasive because Felder et al, when taken as a whole, disclose varying concentration of capture material i.e. the top row comprises 1 drop capture material/well and the second row comprises 4 drops capture material/well and etc thereby providing spots (wells) having a different concentration of capture material within the hybridization capture solution (Example 3, Column 33, lines 32-43 and Fig. 12).

Regarding Claim 5, Applicant notes that Felder et al disclose separate wells each comprising at least 8 different oligonucleotide anchors. Applicant argues that the oligonucleotide anchors are at different spot formation positions within each sample well and not the same spot formation as claimed. The argument has been considered but is not found persuasive because the claims are given the broadest reasonable interpretation consistent with the claim language. The courts have stated that claims must be given their broadest reasonable interpretation consistent with the specification *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997); *In re Prater*, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969); and *In re Zletz*, 893 F.2d 319, 321-22, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989) (see MPEP 2111). The claims are drawn to a biochip comprising arranged spots wherein each spot has a plurality of types of capture material and said spots are formed at a same spot formation position. Felder et al disclose the claimed biochip comprising a arranged spots (i.e. spatially defined regions e.g. wells, Column 2, lines 52-62) wherein each spot (well) has a plurality of types of oligonucleotide anchors and said

spots (wells) are formed at the same spot formation position (the same well on the base plate). Given the broadest reasonable interpretation, the claimed spots encompass the spatially defined regions of Felder et al. Additionally, the clamed spots comprising a plurality of capture material types formed at the same spot formation position encompasses the well of Felder comprising a plurality of oligonucleotide anchors within the well.

8. Claims 1-6 and 30-32 are rejected under 35 U.S.C. 102(e) as being anticipated by Hyldig-Nielsen et al. (U.S. Patent No. 6,280,946 B2, filed 3 August 1999).

Regarding Claim 1, Hyldig-Nielsen et al. disclose a biochip comprising a large number of spots containing capture solutions arranged on a base plate obtained by supplying a plurality of types of capture solutions (RNA solutions) onto said base plate, each of which specifically reacts with a structure of a specimen and provides information about a structure within the specimen wherein a plurality of spots which have a different spot size are formed on said base plate i.e. a serial dilution of spots are formed on the base plate thereby providing spots having different size (Column 25, lines 36-48 and Fig. 4, 5 and 7).

Regarding Claim 2, Hyldig-Nielsen et al disclose the biochip wherein a plurality of spots are formed from the same capture solution i.e. a serial dilution of total RNA is supplied onto the base plate (Column 25, lines 36-42).

Regarding Claim 3, Hyldig-Nielsen et al. disclose a biochip comprising a large number of spots arranged on a base plate obtained by supplying a plurality of types of capture solutions (RNA solutions) onto said base plate, each of which specifically reacts with a structure of a specimen wherein a plurality of spots are formed in which the concentration of the capture material in the capture solution varies from spot to spot i.e. a serial dilution of total RNA is supplied onto the base plate (Column 25, lines 36-42).

Regarding Claim 4, Hyldig-Nielsen et al. disclose the biochip of Claim 3 wherein a plurality of spots are formed from the same capture solution i.e. a serial dilution of total RNA is supplied onto the base plate (Column 25, lines 36-42).

Regarding Claim 5, Hyldig-Nielsen et al. disclose a biochip comprising a large number of spots arranged on a base plate obtained by supplying a plurality of types of capture solutions (RNA solutions) onto said base plate, each of which specifically reacts with a structure of a specimen wherein the spots are composed of different types of captures (i.e. different RNAs within the total RNA sample) and are at identical spot formation pattern (Column 26, lines 16-41 and Fig. 1-5).

Regarding Claim 6, Hyldig-Nielsen et al. disclose a biochip comprising a large number of spots arranged on a base plate obtained by supplying a plurality of types of capture solutions (RNA solutions) onto said base plate, each of which specifically reacts with a structure of a specimen wherein the spots have a ratio of a major to minor axis of not less than .9 and not greater than 1.1 i.e. the spots are circular (Column 26, lines 16-41 and Fig. 1-5).

Regarding Claim 30, Hyldig-Nielsen et al disclose the biochip wherein said base plate is non-permeable with respect to said capture solution e.g. glass (Column 13, lines 46-51).

Regarding Claim 31, Hyldig-Nielsen et al disclose the biochip wherein said base plate is non-perm

Regarding Claim 32, Hyldig-Nielsen et al disclose the biochip wherein said base plate is non-permeable with respect to said capture solution e.g. glass (Column 13, lines 46-51).

Response to Arguments

9. Regarding Claim 3, Applicant argues that Hyldig-Nielsen et al do not form probes on a base plate and do not disclose differing the concentration of the capture material in the capture solution from spot to spot. The arguments have been considered but are not found persuasive as stated above Hyldig-Nielsen et al specifically disclose a biochip comprising a large number of spots containing capture solution i.e. total RNA wherein the concentration of the RNA differs from spot to spot i.e. serial dilution (Column 25, lines 24-42). Hyldig-Nielsen et al disclose the

base plate is nylon membrane (Column 25, lines 36-37) and they also teach base plates comprising other materials e.g. glass (Column 13, lines 46-51). The claim is drawn to a biochip comprising a "base plate" and given the broadest reasonable interpretation of the claim, the membrane of Hyldig-Nielsen et al is encompassed by the claimed base plate.

Regarding Claim 5, Applicant argues that the PNA probes (i.e. capture solutions) of Hyldig-Nielsen et al are not arranged on a base plate. The argument has been considered but is not found persuasive because the claim is drawn to spots containing capture solutions arranged on a base plate. The claimed capture solutions are not limited to PNA or any other type of probe. The spots containing RNA of Hyldig-Nielsen et al are encompassed by the claimed capture solutions because their RNA hybridizes to and captures complementary sequences. Therefore the RNAs of Hyldig-Nielsen et al are encompassed by the claimed capture solutions. Applicant further argues that Hyldig-Nielsen et al do not teach that either RNA or PNA probes are formed at the same spot formation position as shown in Fig. 16 and 17 or as claimed. The argument has been considered but is not found persuasive because the claim is drawn to a biochip comprising spots having a plurality of types of capture material wherein said spot are formed at a same spot formation position. Hyldig-Nielsen et al disclose spots having a plurality of RNAs wherein the plurality of RNAs are in the same spot and therefore at the same spot formation position as claimed. Regarding Fig. 16 and 17, it is unclear which features illustrated in the figures are being referenced by Applicant. However, the reference is not relevant to the rejection because the rejection addresses limitation in the claim. As stated above, Hyldig-Nielsen et al disclose the biochip as claimed.

Regarding Claim 6, Applicants argues that Hyldig-Nielsen et al are silent regarding the claimed ratio of major to minor axis which defines the degree of roundness. The argument has been considered but is not found persuasive because Hyldig-Nielsen et al illustrate roundness of their spots in Fig. 1-5 and 7. As such, they are not silent regarding roundness, but instead illustrate the claimed roundness.

Regarding Claim 30-32, Applicants argue that the nylon membrane of Hyldig-Nielsen et al is permeable with respect to the capture solution. The argument has been considered but is not found persuasive because Hyldig-Nielsen et al specifically disclose numerous base plate compositions impermeable with respect to the capture solution (Column 13, lines 46-51).

Claim Rejections - 35 USC § 102/103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 15-20 and 22-27 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Felder et al. (U.S. Patent No. 6,232,066 B1, filed 2 July 1998).

Regarding Claims 15-20 and 22-27, Felder et al. disclose the biochips of Claims 1-6 wherein spots formed with an in-jet system (Column 13, lines 23-34). The courts have stated that "even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) see MPEP 2113. Felder et al disclose the biochips of Claims 1-6 wherein the spots are formed using an ink jet (Column 13, lines 23-34 and Column 30,lines 23-26). Because the claimed biochip comprising a plurality of spots does not depend upon the process of making the biochip i.e. electronically controlled sample discharge and number of discharges and because Felder teaches the biochip as defined i.e. comprising a plurality of spots arranged on a base plate, Felder et al disclose the claimed biochip.

Alternatively, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the discharge and firing times in the ink jet deposition of Felder et al by electronically controlling the discharge and firing times to based on

the known benefits of electronic control i.e. precision and speed for the expected benefits of producing biochips efficiently and accurately.

Claim Rejections - 35 USC § 103

12. Claims 7 and 14-28 are rejected under 35 U.S.C. 103(a) as obvious over Felder et al. (U.S. Patent No. 6,232,066 B1, filed 2 July 1998) in view of Fisher (U.S. Patent No. 6,232,072 B1, filed 15 October 1999).

Regarding Claim 7, Felder et al. teach the biochip of Claim 6 comprising a large number of spots (i.e. spatially discrete regions e.g. wells) arranged on a base plate obtained by supplying a plurality of types of capture solutions (i.e. anchors) onto said base plate each of which specifically reacts with a structure of a specimen wherein the spots are composed of different types of captures (i.e. different oligonucleotide anchors, Column 2, lines 49-62) wherein each of said spots has a ratio between a major and minor axis of not less than 0.9 and not more than 1.1 i.e. the spots are circular wells wherein the ratio between the major and minor axis is not less than 0.9 and not more than 1.1 (e.g. Fig. 10, 12, 13) but they do not teach the spots are arranged in at least a zigzag configuration and they do not teach a ratio of the area having a spot with respect to an inspection effective area. However, Fisher teaches a similar biochip comprising a large number of spots based on capture solutions arranged on a base plate obtained by supplying onto said base plate a plurality of types of capture solutions each of which specifically reacts with a specimen (Column 3, lines 27-32) wherein the size, shape and arrangement of the spots can be adjusted as desired to form patterns on the base plate (Column 10, lines 1-9 and 32-49) to thereby determine capture characteristics by location within the pattern (Column 10, lines 42-47). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the spot pattern of Felder

et al. and to arrange the spots in a zigzag pattern wherein the non-deposition area to deposition area ratio is not more than 9% thereby providing a pattern wherein structure-specific capture is easily determined by determining its location within the pattern for the obvious benefit of facilitating detection of structure-capture interaction as taught by Fisher (Column 10, lines 42-47).

Regarding Claim 14, Felder et al. teach the biochips wherein spots formed with an in-jet system (Column 13, lines 23-34).

Regarding Claims 15-20 and 22-27, Felder et al. teach the biochips of Claims 1-6 comprising a plurality of spots arranged on a base plate (Column 2, lines 49-62) wherein spots formed with an in-jet system (Column 13, lines 23-32 and Column 30, lines 23-26) but they do not specifically teach the discharge and firing times are electronically controlled. However, electronically controlled ink jet discharge and firing times forming biochip was well known in the art at the time the claimed invention was made as taught by Fisher (Column 9, lines 49-67). Felder et al teach the biochips of Claims 1-6 wherein the spots are formed using an ink jet (Column 13, lines 23-34 and Column 30,lines 23-26). It would have been obvious to one skilled in the art to apply the electronically controlled discharge and firing times taught by Fisher to the ink jet deposition of Felder et al to thereby adjust and control biochip deposition as desired and as suggested by Fisher (Column 9, lines 49-67).

Additionally, The courts have stated that "even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) see MPEP 2113.

Because the claimed biochip comprising a plurality of spots does not depend upon the process of making the biochip i.e. electronically controlled sample discharge and number of

discharges; because Felder teaches the biochip as defined i.e. comprising a plurality of spots arranged on a base plate; and because Fisher teaches that ink jet deposition comprises electronically controlled discharge and firing times the claimed biochip is obvious in view of the teachings of Felder et al and Fisher.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

14. No claim is allowed.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BJ Forman whose telephone number is (703) 306-5878. The examiner can normally be reached on 6:30 TO 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Jones can be reached on (703) 308-1152. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-4242 for regular communications and (703) 308-8724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

BJ Forman, Ph.D.
Patent Examiner
Art Unit: 1634
May 2, 2002

W. Gary Jones
Supervisory Patent Examiner
Technology Center 1600